Space Weather Forecast

Issued on Friday 29 November 2024 at 01:07 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Low to Moderate Activity. Coronal Mass Ejection arrival Day 1 (29 Nov) with potential for Minor/Moderate Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low during the past 24 hours, with only Common class activity observed. There are nine active regions currently on the Earth-facing disc. The largest of these are both in the southwest, one with moderate magnetic complexity. However, they have remained relatively inactive. A new region emerging in the southeast limb may be one region or two separate regions - for the time being it is classified as one region but this may change as it moves into a clearer viewing angle. The other regions are generally smaller and simpler, with no sign of notable growth or development.

A partial filament (a plasma and magnetic rope structure) eruption was observed occurring in the southeast quadrant, starting around 28/0428 UTC. The accompanying Coronal Mass Ejection (CME) has been analysed, and while most of the material misses Earth there is a chance of a slight impact on the 2nd December.

Solar Wind / Geomagnetic Activity: Slow wind conditions persisted, with speeds generally around 350km/s. Interplanetary Magnetic Field was mostly weak. The north-south component varied weakly. Geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate-class flares. There is a slight chance of Strong flares.

Solar Wind / Geomagnetic Activity: A CME from the filament eruption on 25 Nov is expected to arrive early today (29 Nov), but with the bulk of its material passing south and east. Otherwise, mainly background winds are expected until day 4 (2nd Dec) when there is a possibility of a glancing blow from a CME which left the Sun about 28/0430UTC. Initial Quiet geomagnetic activity is likely to increase Active to G1/Minor Storms for a while today, due to a CME arrival. There is slight chance of G2/Moderate Storms. CME enhancements then ease later today with Quiet to Unsettled conditions following for the remainder of the forecast period, although there is a chance

---

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

of a glancing blow CME arrival through day 4 (2nd) temporarily increasing activity to Unsettled to Active.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background levels with only a slight chance of solar radiation storms occurring.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	50	10	1	20
Strong	G3	No	1	1	1	0
Severe	G4	No	1	1	1	0
Extreme	G5	No	1	1	1	0

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	40	40	40
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.